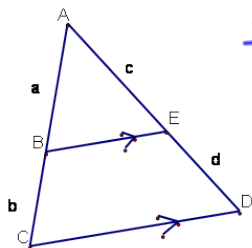
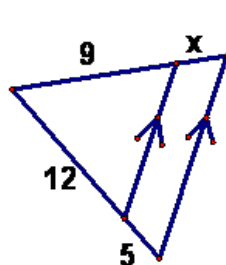


7-5 Proportions and Similar Triangles

Theorem 7.4-Triangle Proportionality Theorem-If a line is parallel to one side of a triangle and intersects the other two sides, then it divides the two sides proportionally.



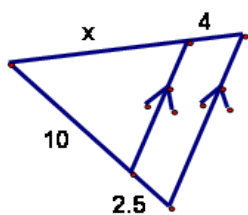
$$\frac{a}{b} = \frac{c}{d}$$



$$\frac{12}{5} = \frac{9}{x}$$

$$12x = 45$$

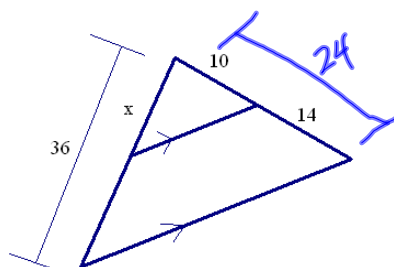
$$x = 3.75$$



$$\frac{10}{2.5} = \frac{x}{4}$$

$$2.5x = 40$$

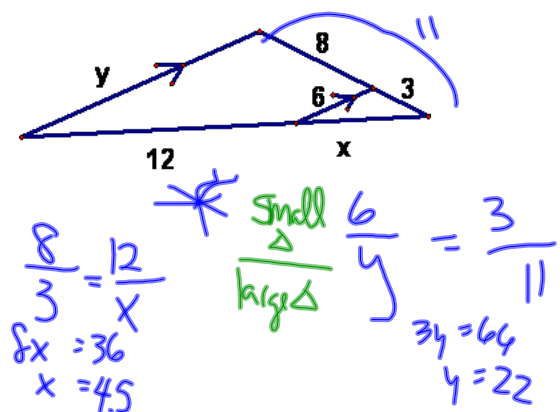
$$x = 16$$



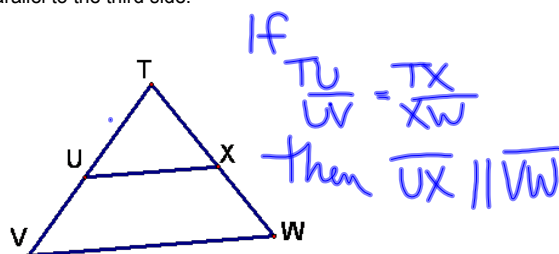
$$\frac{x}{36} = \frac{10}{24}$$

$$24x = 360$$

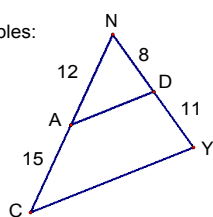
$$x = 15$$



Theorem 7.5-Converse of the triangle proportionality Theorem-
If a line divides two sides of a triangle proportionally, then the line is parallel to the third side.



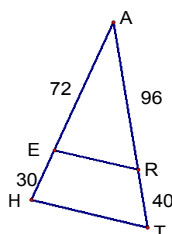
Examples:



Is $\overline{AD} \parallel \overline{CY}$?

$$\frac{12}{15} \stackrel{?}{=} \frac{8}{11}$$

No

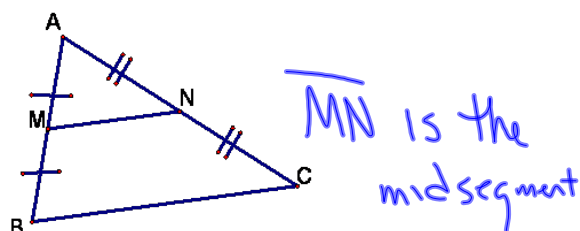


Is $\overline{ER} \parallel \overline{HT}$?

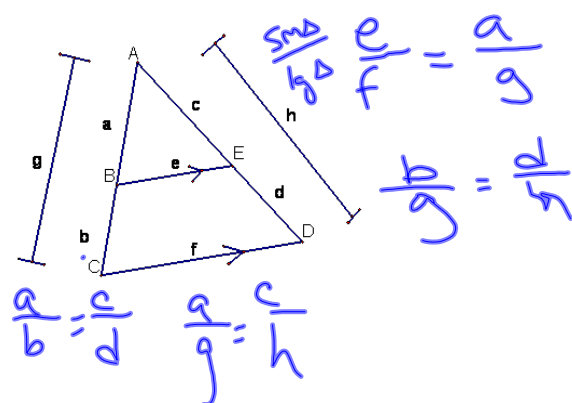
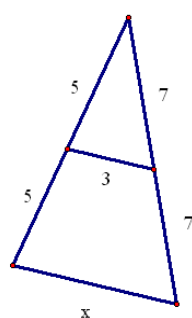
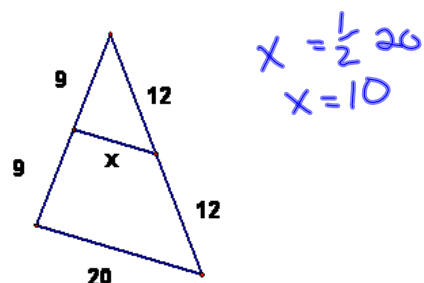
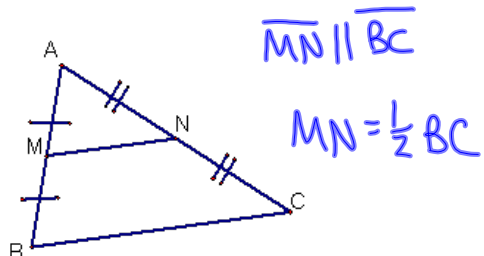
$$\frac{72}{30} \stackrel{?}{=} \frac{96}{40}$$

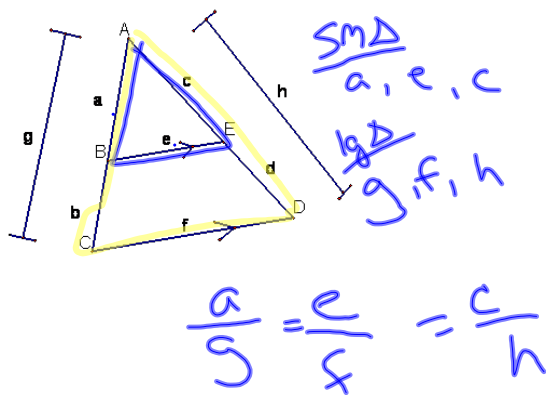
yes

Midsegment-of a triangle is a segment whose endpoints are the midpoints of two sides of a triangle.



Theorem 7.6-Triangle Midsegment theorem-A midsegment of a triangle is parallel to one side of the triangle, and its length is $\frac{1}{2}$ the length of that side.





HW
 p390-392
 3-9, 14-16, 19, 24-26